

ABSTRACT OF THE DISCLOSURE

A reference current (I_{ref}) that includes a constant component current (I_{refc}) and a transient component current (I_{reftr}) is fed to the reference FET (QB) such that a source potential (VSA) of the main FET (QA) when a load current (I_D) flowing a main FET (QA) is not within the range of an over-current containing a transient component is not lower than a source potential (VSB) of a reference FET (QB). A reference current (I_{ref}) vibrates by detecting that a source potential (VSA) of the main FET is lower than a source potential (VSB) of a reference FET. A vibration number of times is counted up to a predetermined number of times, thereby turning OFF the main FET (QA).